![Electrolux Distriparts logo]

SERVICE MANUAL

COOKERS

HIC

Index

Safety-relevant instructions

The specific national safety instructions of the different distribution countries must be observed and followed.

For Germany the safety instructions according to DIN/VDE 0701 (relating to repairs) resp. VDE 0700/ICE 65 (relating to appliance) are valid in case of repairs with the appliance.

Components according to IEC resp. VDE guidelines: In case of replacement use only parts with the same specification.

With controls which are provided with MOS components use only parts with the same specification.

In dealing with MOS components observe MOS instructions!

Mechanical repairs resp. controls of mechanical components are only allowed to be executed in no-volt condition

Use safety gloves when working at or with sharp-edged sheet metal parts.

1. Description of the product

This service manual describes a family of hob independent controls named HIC. The control is equipped with 7 Segment displays, LEDs and infrared key sensors for up to 5 cooking zones and mounted in a hob under the glass ceramic or separate in a housing (Centronica). The Power board could be HOC2000 or Induction G4. The communication is to the power board via Macs Bus Light bus (serial communication).

The electronic is supplied by 5V±5%/150mA regulated DC via MACS Bus.

peak power: $P_{max} = 1.25$ W
mean power: $P_{mean} = 750$ mW

ripple voltage: $U_r = ±100mV$
mean current: $I_{mean} = 150mA$
maximum input current: $I_{max} = 280mA$

The stand by consumption must be less than 0.1W

1.1. Centronica

- User Interface with touch inputs and displays / indications on version-specific glass panel, remote-mounted (outside the hob) in a separate housing or built-in in built-under oven control panels.
- Radiant Power Board, mounted inside or outside the hob (HOC2000)
- **Cable Link** 3-pole connects the User Interface and the Power Board together (MACS Light Communication) Power supply is from Power Board.
- Cooking power regulation with 12 (13 with power) steps.
- Residual heat indication in hobs, not calculated
  (not in CENTRONICA-UI displayed)
- Priority code ("Prio-code"): individual user-pre-programming of each multiple cooking zone

2. Mechanical Concept And Layouts

2.1. Variants

The following drawings describe the maximum configurations.
Variants with less keys or LEDs are possible.

2.1.1. Dimensions

Compact (horizontal, vertical, large hobs):   270 x 36 x 5.4   (l x w x d)
Split: 135 x 36 x 5.4
Centronica: 230 x 45 x 5.4

2.1.2 Variant 1 - compact horizontal
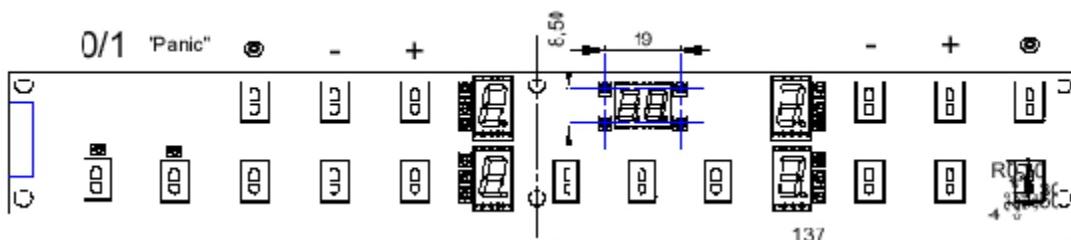
17   Sensors
18   round LEDs
6   7-segment displays
Size: 270mm x 36mm²

With this variant the input part (interface) and the power board are mounted in a common box (casing), at the front, horizontally.

worktop   cooktop frame   cooktop glass   Interface

built-in closet   power board   electronic casing
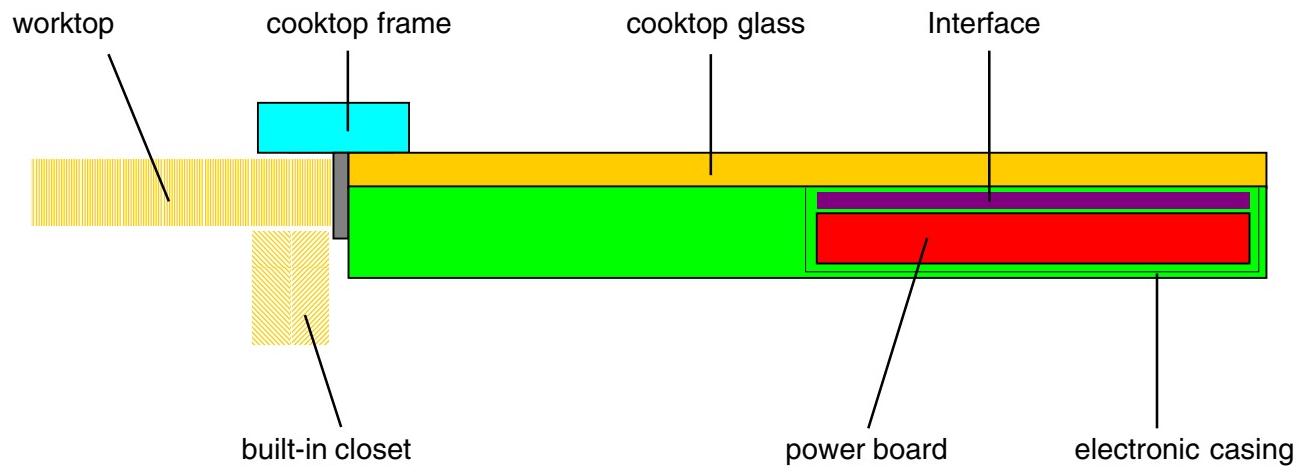
━━━━━ wiring and mains cable
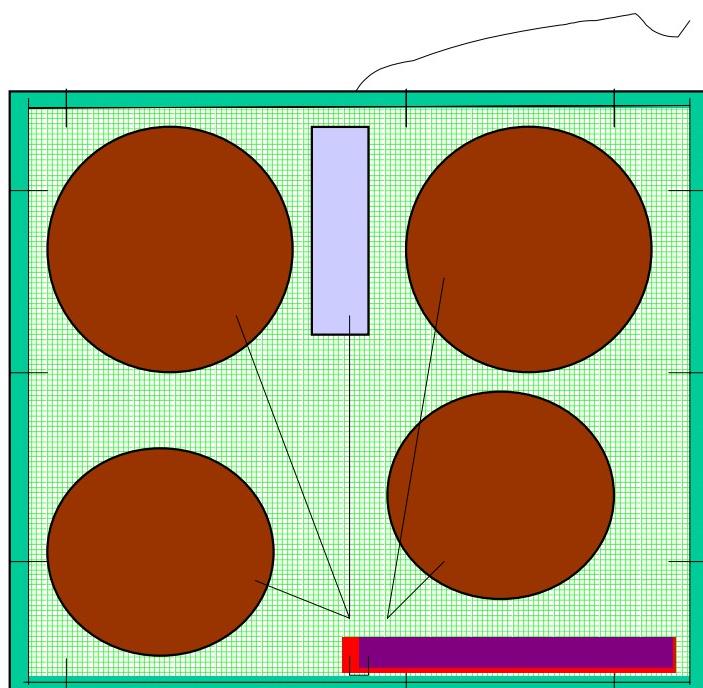
2.1.3 Variant 2 - split vertical
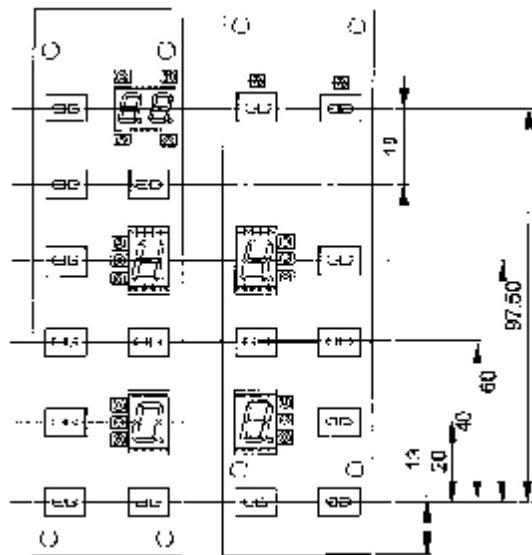
17   Sensors
18   round or rectangular LEDs
6   7-segment displays
size: 135mm x 36mm²

This variant includes two input parts (interfaces). On the one hand, at the right in front, for the two right cooking zones; and on the other hand, at the left in front, for the two left cooking zones. The power board is also positioned on the left side, however in an extra casing at the rear left.

worktop

design element

cooktop glass

design element

worktop

built-in closet

built-in closet

left interface

right interface

power board

wiring and mains cable
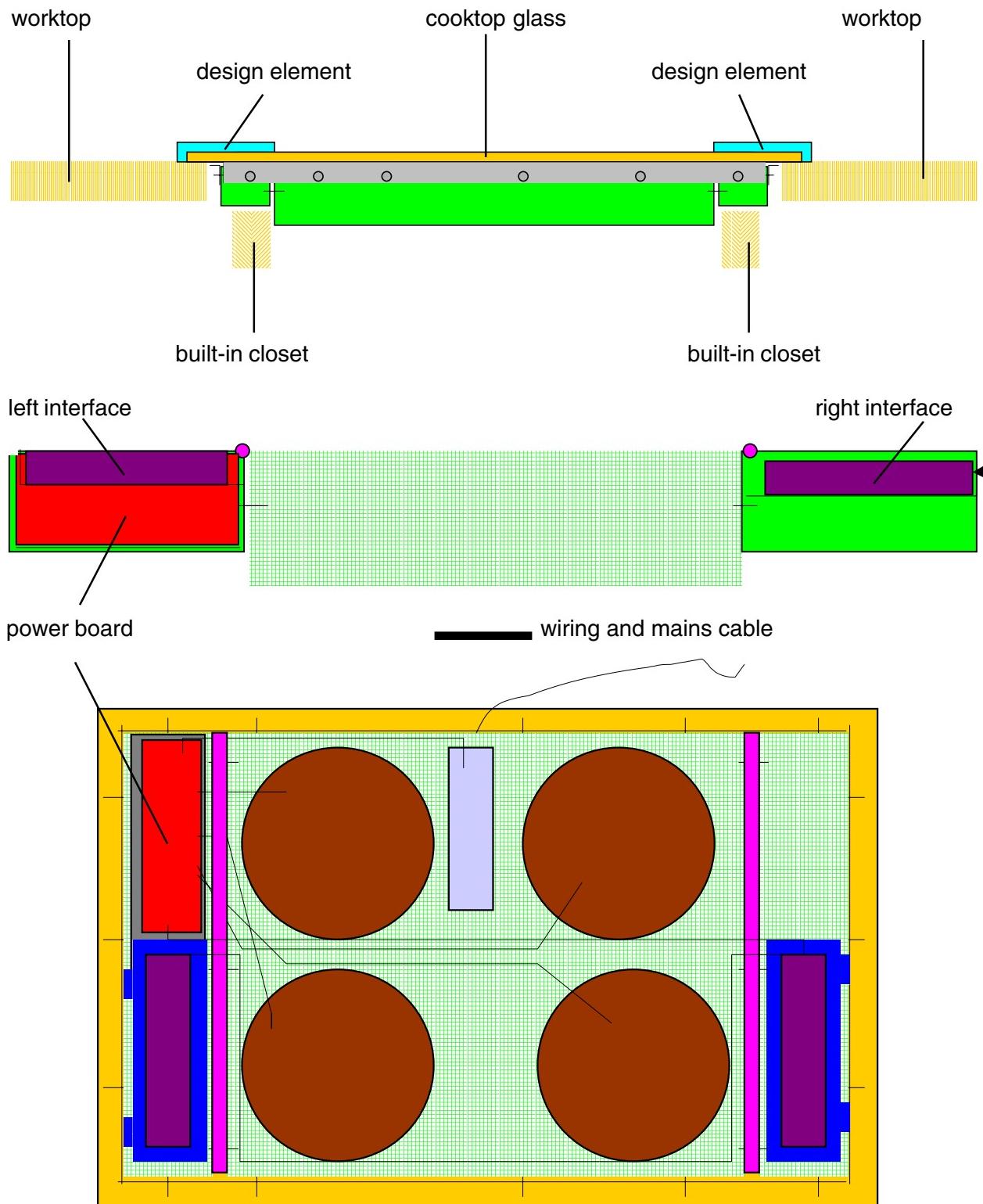
2.1.4 Variant 3 - compact vertical
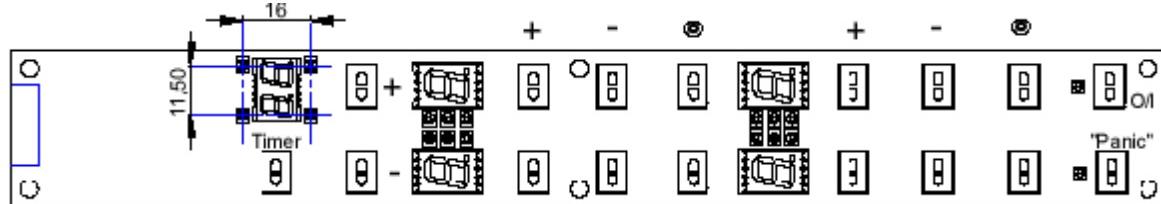
17   Sensors
18   round LEDs
7-segment display
Size: 270mm x 36mm²

The name of the variant "Compact vertical" expresses that the input part (interface) and the power board are two separate units. The positions are as follows.
The interface is vertically at the front right and the power board is vertically at the rear left.
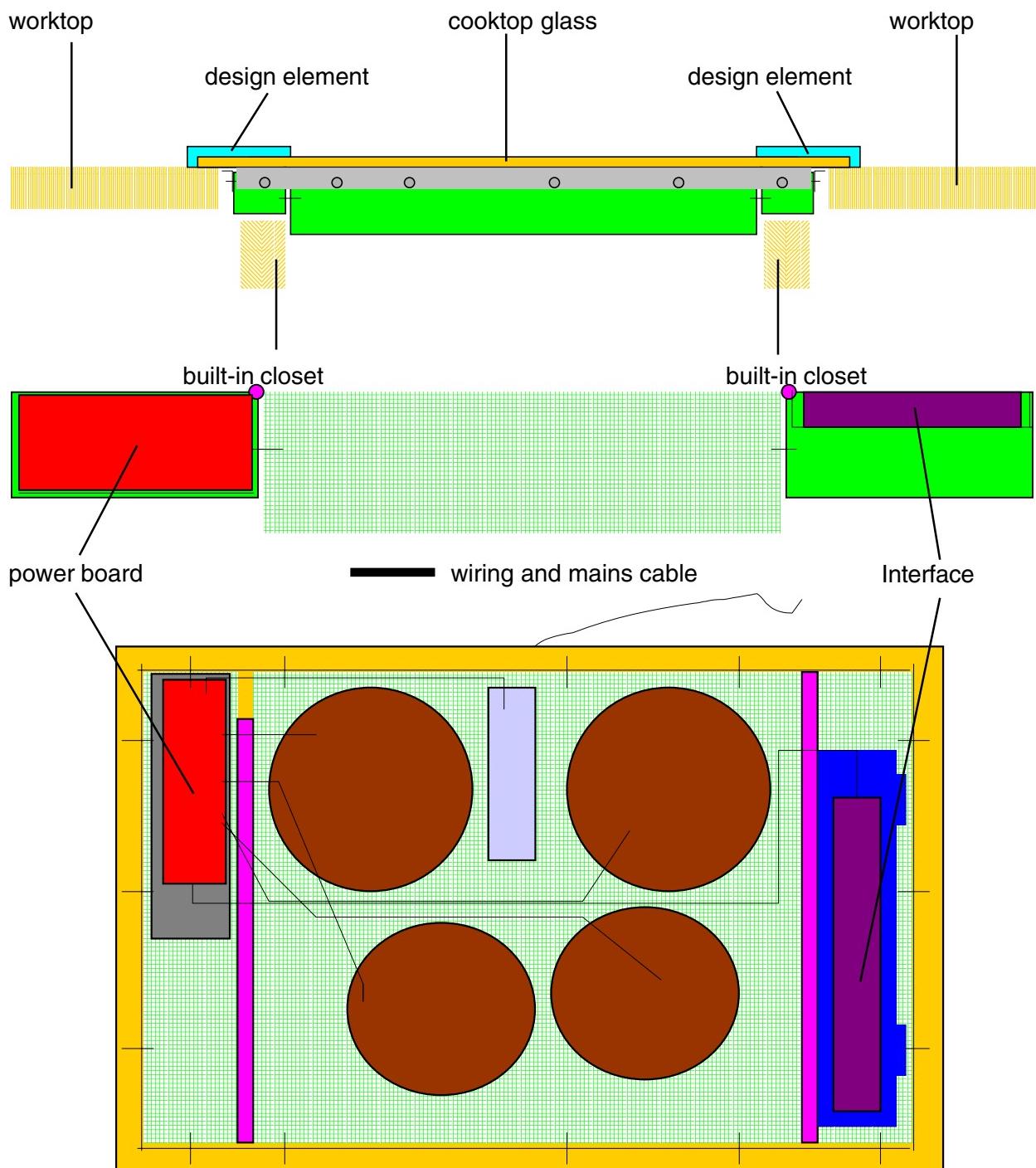
2.1.5 HIC Induction
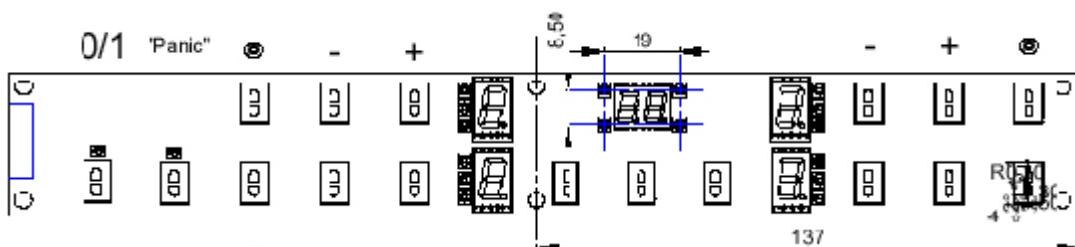
This is only a assembly variant of HIC compact horiziontal

17	Sensors
18	round LEDs
7	7-segment displays

Size: 270mm x 36mm ²

2.1.6 Centronica
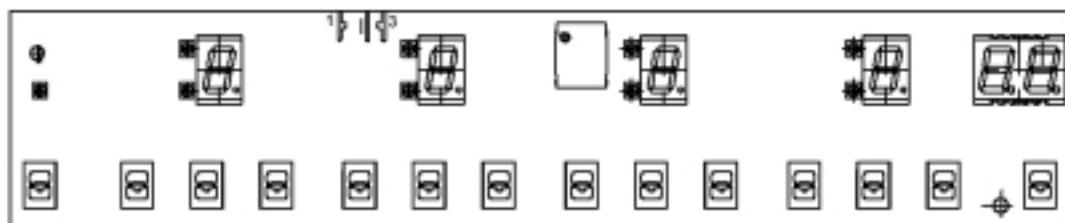
14	Sensors
9	round LEDs
7	7-segment displays

Size: 229mm x 47mm²

Centronice user interface

Glass touch panel

Control of Induction cooking hob (230 VAC)

Glass ceramics 2 part

Variants
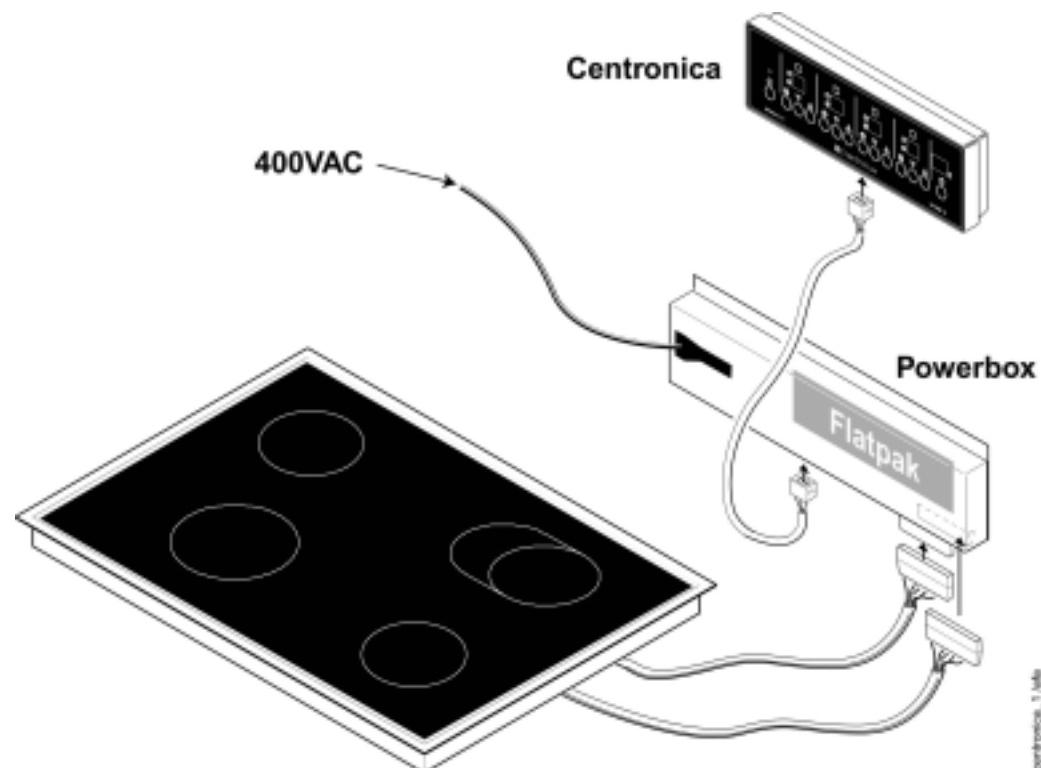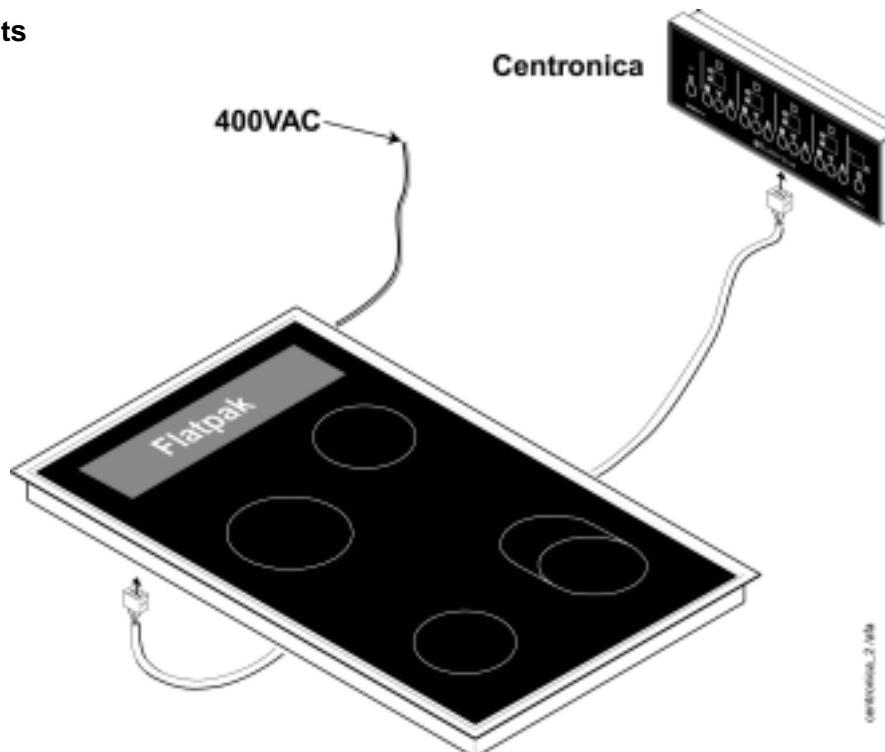
3. Power board HOC2000

This board consists of a number of relays, a transformer and other components which are necessary for the power supply of relays and input boards.

It receives the electrical control signals transmitted by the input boards and supplies the relevant heating element (cooking zones) with power depending on the impulse/s.

The control relays select the various cooking zones, its number may change according to the type of appliance.

Voltage: 230V
Frequency: 50Hz/60Hz
Max. working temperature: 85° C

Information A: The power board is marked with
                    -       the variant number
                    -       the production date (week/year)

The various plug tags (BRxx) and relays (Rxx) are specified on the board. These specifications can also be found on the wiring diagram.

Also on the power board there is a safety temperature limiter which stops the power supply and switches off the appliance when exceeding a board temperature of 130°C. After a successful cooling down it switches back again and the built-in cooktop can be put into operation.

Between contact BR19 (neutral) and BR22 (phase) it is possible to measure the mains voltage.
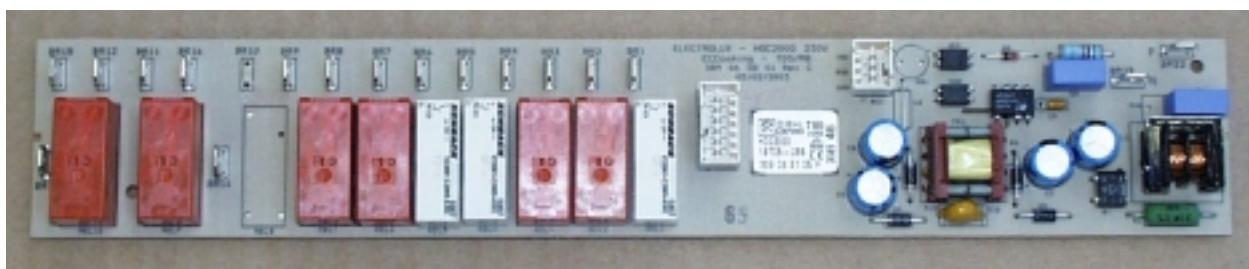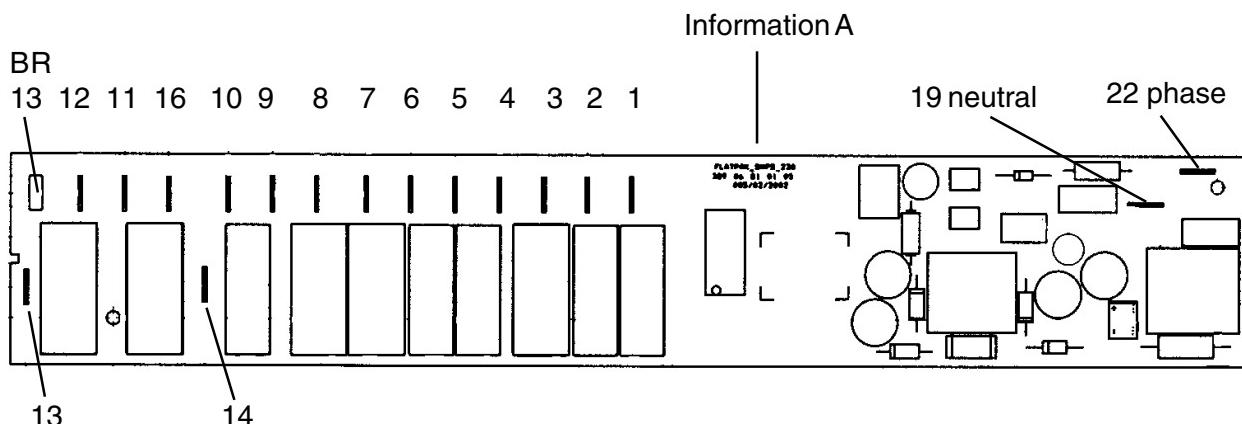
4. Functionality

Typical display of User interface status:

Zone is hot:
Boost is not possible!

Press both buttons to switch
off the zone rear right!

-button for decreasing
cooking level of zone
front left!

+button for increasing
cooking level of zone
front leftt!

Boost function is on!
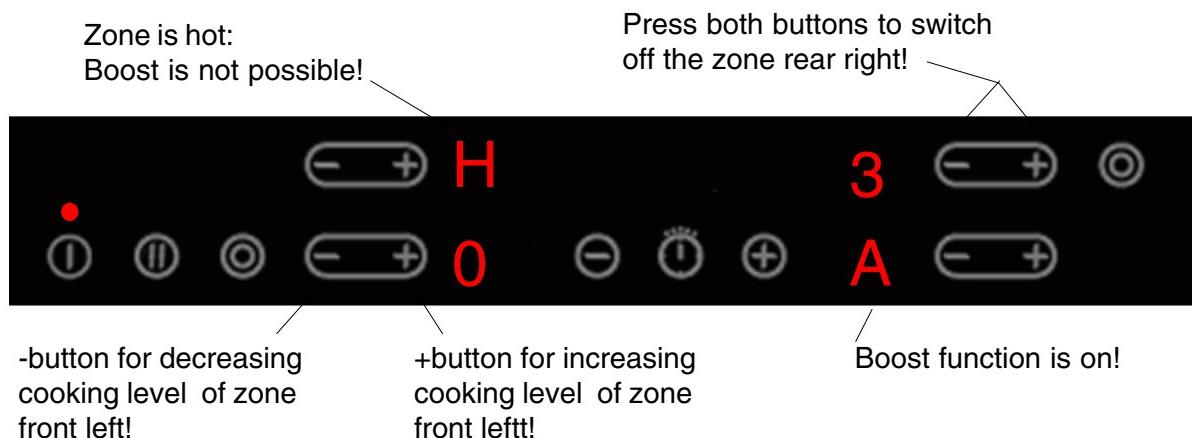
4.1   Cooking levels

The Type of cooking levels is configured in the EEPROM of the power board and transmitted to the user interface with the HOB UI Configuration message.

Power Levels Display European	Swiss variant (Centronica)
0	0
u	
1	
2	1
2.	2
3	
3.	3
4	
4.	4
5	
5.	5
6	6
6.	7
7	8
8	9
9	H
P	P

There are versions with/without the intermediate steps and also with/without the keep warm level "u" for the European version. For "P" see chapter Boost functionality (Automatic heating up / Ankochstoss)

4.2 Increasing cooking levels

- With the zone '+'buttons the cooking levels can be stepped through from level 0 to the maximum cooking level.
- The power for the zone has to be switched on at the start of increasing the level.

4.3 Decreasing cooking levels

- With the zone '-' buttons the cooking levels can be stepped through in the following way:
- e.g.: 0 – 9 – 8 – 7 – 6 – 5 – 4 – 3 – 2 – 1 – 0
- The power for the zone has to be switched off at the start of decreasing the level.

4.4 Switching off a cooking zone

A cooking zone can be switched off by
- Decreasing the cooking levels down to zero.
- Pressing the '+' button and the '–' button of one zone together.
- Pressing the "OFF" button of the hob, then the whole hob is switched off.

4.5 Boost functionality (Automatic heating up / Ankochstoss)

To reach the temperature for a cooking zone as fast as possible the hob has a boost function. In boost mode ("A") the hob is working with cooking level "9".

If the boost function is active, the letter „A" (german: **A**nkochstoß) is displayed in the 7-Segment display of the zone.

Setting of boost function is only possible, if cooking zone is in state cold, which means there is no „H" in the zone display.

If the boost mode is activated the displays changes after approx. 3 sec from the cooking level to "A".
If the zone is in boost mode and the '+'button is pressed, the actual cooking level has to be shown in the display again.
If the zone is in boost mode and the '–' button is pressed, the actual cooking level has to be shown in the display again.

The boost function must be switched off by the following events:
- Boost time has elapsed. This information comes from the power board with a „hob control status message".
- Cooking level has been decreased.
- Cooking level has been set >"9" or "P").
- Keep warm function has been activated.
- Power function, "normal setting" has priority, see chapter Power Management

4.5.1 Automatic boost

Setting of cooking level with boost function
Starting from "0" by increasing the cooking level with the '+' button the boost function will be activated automatically.

Setting of cooking level without boost function:
This can be done by pressing the "–"-button of a cooking zone. In this case you step in the opposite way through the cooking levels, e.g.

0 – 9 – 8 – 7 – 6 – 5 – 4 – 3 – 2 – 1 – u – 0

4.5.2 Manual boost

The boost is activated like on a rotary interface.

- Set the cooking level to "9"
- Release the '+' key and press it again
   -- "A" is displayed
- Decrease with '-' key to the desired cooking level (the cooking level is displayed)
- After approx. 3 sec. the "A" is shown

4.6 Key Lock / Stop&Go button

For HIC compact horizontal, vertical, split the button beneath ON/OFF can be configured with different functions:

1) Key lock function (function lock):
   To activate or deactivate key lock function keep warm button must be pressed for one second.
   The status is shown with an LED. If in looked mode wants to press s.o. another key an "L" is shown for a few sec..
   If key lock is active all buttons cannot be pressed except main button, Key Lock.

2) Stop&Go (Keep warm) function:
   Each activated cooking zone is set to minimal power level "u". The status is also shown with an LED (if equipped).
   If Stop&Go is active all buttons cannot be pressed except main button, Stop&Go.

3) For HIC comp. horizontal this key is layouted parallel to the double/triple zone key of the left rear zone.
   For the configuration of the 1 key timer it is necessary to set the HobUI Configuration with this double / triple zone functionality.

An exception for keys locked in the Stop&Go and Key Lock mode is the end of a timer. In that case the timer alarm can be quitted directly.

4.7 Timer

The hob has a timer for setting the cooking time of each zone. Further the timer can be used as a usual clock (egg timer). The timer display has two digits. Therefore a time up to 99 minutes can be set.

The graphics below show the 3 key timer.

Timer display

Timer -button   Timer +button

Timer selection button

LED for zone left rear   LED for zone rioght rear

LED for zone left front must blink   LED for zone right rear is off
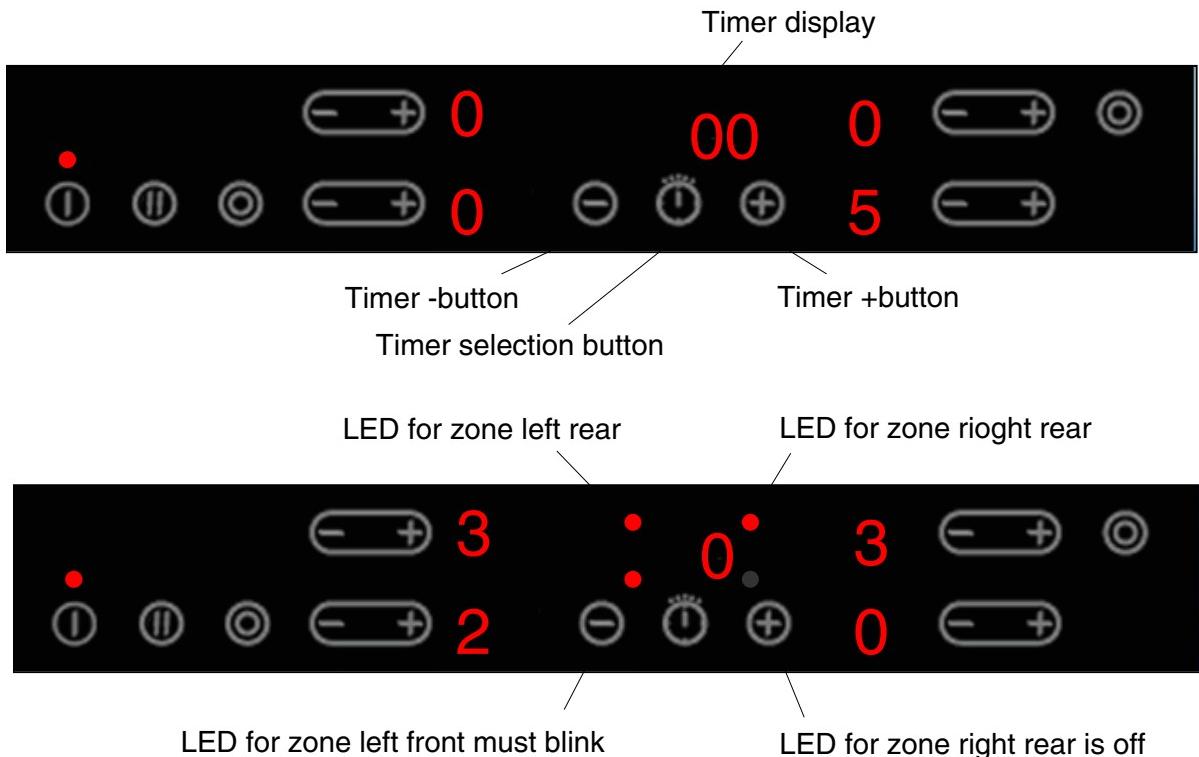
It is possible to select a timer with power level "0". There is no separate egg timer. Even when e.g. 2 cooking zones are running, you can call the clock function on the 3rd or 4th cooking zone. Over and above that, the user can also set the time first and the cooking zone afterwards.

4.7.1 Three key timer

The times can be set by the timer '+' and '–' buttons.

Enabling time setting:
- To enable timer setting timer selection button must be pressed.
- If no timer +button or –button has been pressed for 3 seconds timer setting must be disabled.
- By pressing the timer selection key again you toggle through the timers of the different zones.

Time setting:
- If time setting is enabled the timer display shows the according time.
- Times can be set with timer +button and –button from 0 to 99 minutes.
- By pressing the timer +/-buttons together the time is set to zero.
- By starting to change the times a beep must sound.
- If a timer + or –button has been pressed for a few second the timer shall step faster through it's range.

Cooking timer LEDs:
- Each zone has a LED, which is signalising if a cooking time is set.
- This LED blinks if the setting of the cooking time for this zone is enabled (time selection enabled).
- This LED is continuously ON if a cooking time is set.
- If timer selection is deactivated the LED for the zone with the lowest cooking time must blink with a slower frequency.

Timer display:
- If timer setting is enabled the timer display shows the according time which can be changed.
- If timer setting is disabled the timer display shows nothing if no time is set.
- If timer setting is disabled the timer display shows the lowest cooking time if set.

Timer end:
- The buzzer rings in a pleasant sound and the LED is blinking for max. two minutes.
- If a cooking time has elapsed the according zone must be switched off.
- The signalisation of a timer end can be stopped by pressing one of the timer buttons.
- The cooking end procedure starts again with each new ending of a cooking timer.

4.7.2 One key timer

The „+" and „-" keys of a zone are used for the time setting if the timer is activated with the timer select key. So only 1 timer key (timer select key) is used, in some documentation this was also called "Centronica" timer. This kind of timer is used for large hobs, Centronica and induction hobs.

The „+" key of the timer is used as Key Lock. The „-" key of the timer is optional used as Stop&Go (only HIC horizontal for induction).

Details of Timer function:
- With the timer select key the timer is activated. Like in standard 3 key timer the first active zone (order: front left – back left, back right, front right) is selected if no timer is activated. After selection of one zone for the timer (toggle to the zone with timer select key) you set with the + / - keys of the activated zone the time.

4.8 Pot Detection / Empty pot

- If no pot is detected and the power level is set to a level > „0", a „F" is blinking.
  The induction power board switches the zone off after 10 min. if no pot is detected.
- Over temperature of pot or dry boiling pot (coil temperature sensor).
  If the power has to be switched off, the power board sends a Hob Power management- actual status message (FB_h). In the display a „-" is shown. The user has to switch off the zone, before a new value can be set.

4.9 Power Management

- **Power management – actual status**
  This is due to the limited power on 1 phase (3,7kW for induction). The last selected cooking zone has priority and gets the power. The user interface sends a HobUserSelection message with the required power level. If the power board is unable to do this, the other zone is set to a lower level by the power board this is broadcast to the user interface with Hob Power Management – actual status message.

- The **user interface** displays blinking the set value and the actual value. If the power is not set to the full set value during 1 Min. the user interface changes the set value to the lower actual value (HobUserSelection Message).

- **PowerManagement with Stop & Go**: If the Stop & Go functionality is used in the 1st minute of the PowerManagement, the managed cookinglevels were selected after relesing the Stop& Gop functionality.
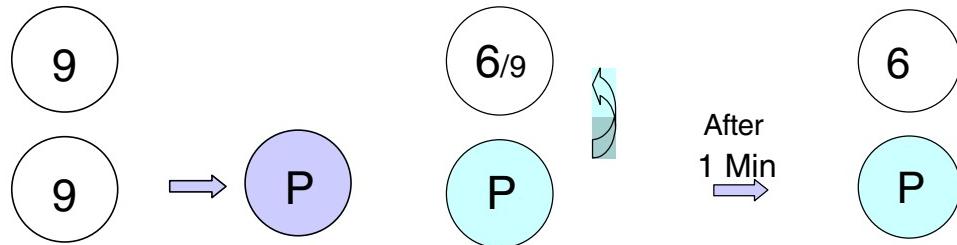
- **Remark**: the power function is switched off automatically after 10 Min. from the induction power board and the power level is set to „9". In this case there is no switch between actual and set value, the actual value is displayed. A power reduction is also possible due to a too low cooling performance of the induction module. This case is handled in the same way. Same procedure if there is a reduction due to too high temperature at the coil sensor.

4.10 Child lock mode

In child lock mode no cooking function can be selected.

Activation of child lock:

To enter the child lock mode the following sequence of buttons must be pressed:

1. Press main switch button for one second to switch on the UI.

2. Press the keep warm button for 3 seconds. A beep will confirm this action.

3. Press one of the „+"-buttons for power level setting. Then child lock mode is activated. The hob must switch off itself. An „L" must appear for a few seconds in the zone displays to show that child lock has been activated.

Press one of these zone
+buttons!

„L" appears in displays
after activation!
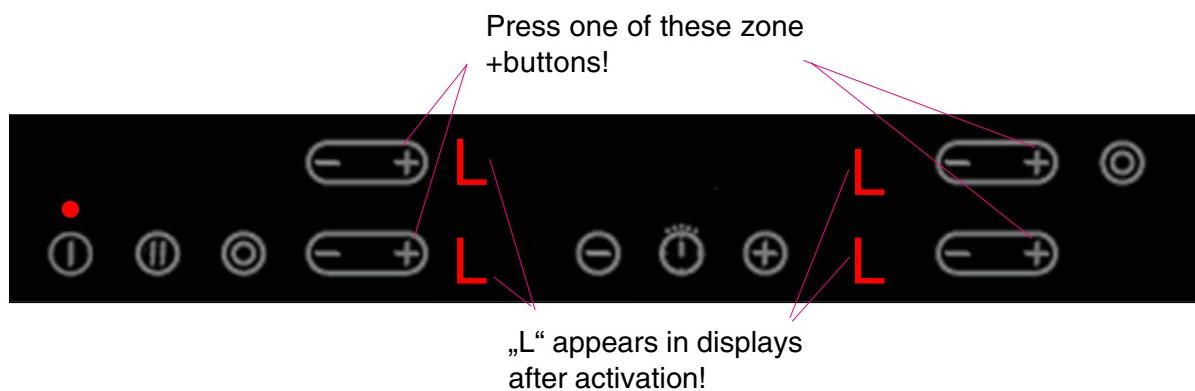
Deactivation of child lock:

To deactivate the child lock mode the following sequence must be pressed:

1. Press main switch button to switch on the UI. The power level displays are showing „L" for child lock.
2. Press the keep warm button for 3 seconds. A beep will confirm this action.
3. Press one of the „-"-buttons for power level setting. The child lock mode is deactivated. The „L" in the power level displays. The hob must switch off itself.

Deactivation of child lock for a single cooking event (interrupt child lock):

It must be possible to deactivate the child lock mode for one cooking event. That means cooking is possible until the next switch off of the hob. Then child lock is activated automatically again.

The deactivation of the child lock mode for a cooking event must be done by the following way:

1. Press main switch button to switch on the hob. The „L" shows Child lock mode in the power level displays.
2. Press „-" and „+" button of a zone together for one second. Then a beep must signalise child lock is off and the „L" disappears and a "0" is shown in the displays. Now cooking can be done till the next switch off.

Press one of these +/- pairs together for 1 second!
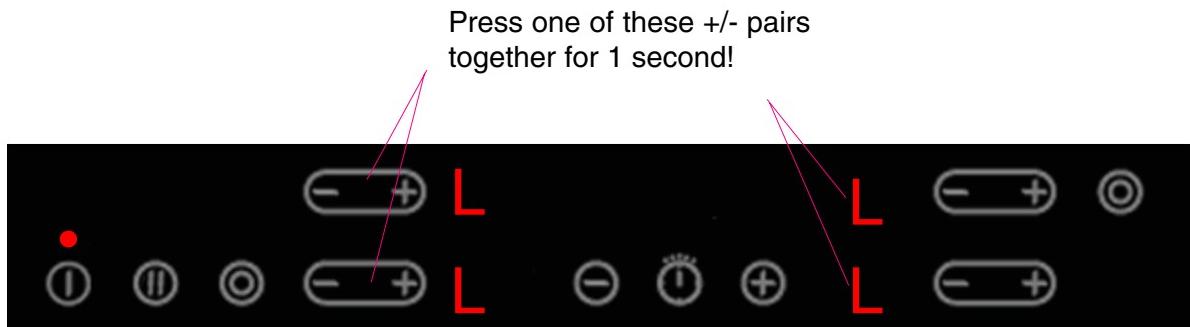
4.11 Alarm messages

It is possible that an alarm message involves the whole hob or that only 1 zone is not functional.
This message includes the number and the zones for which the message is valid.
Procedure – Failure occurs during cooking
For 10 sec. Beep 1 Hz (like continuously pressed button) and display of the error number plus optional the number of the power board with failure.

Alarm number

After 10 sec or after a press on one button (all buttons) the user interface toggles to the next status, there the zones without alarm can be used normal. On the zones with alarm an „E" is shown.

If the hob is switched on with the main switch and an alarm is still active the alarm is shown for 10 sec. as above (incl. Beep and press main button again). The UI stores the alarm of each module and shows the alarms in succession if several alarms are active. The hob is in "normal" standby modus and the cooking levels and timers are set to 0.

The following error codes are shown:

Error-Code Display	Name	Comments
E-0	Config_Data_ALM_HC	Wrong Configuration on HC / EEPROM checksum failure
E-1	TEMP_CoolBlock_ALM_L	
E-2	TEMP_CoolBlock_ALM_R	
E-3	Phase1missing_L	Phase not detected on powerboard induction Left
E-4	Phase2missing_R	
E-5	CommErrorPowerBoard_L	Internal Ind.Bus error/ missing connection / 12VDC or 5VDC missing
E-6	CommErrorPowerBoard_R	
E-7	Temperature probe coil	*Error of min. 1 cooking zone* (see alarm codes message def.)
E-8	Communication error to power board	
E-9 (E-3)	Config_Data_ALM_HUI	HUI received invalid configuration

For the induction (HC2) means this that besides the error code 7 for the temperature sensor all zones connected to this module are blocked / switched OFF.

4.12 Demo mode / Self test (Service mode) / Alarm Menu

To enter the self-test/Demo mode, the following sequence of buttons must be pressed:

1. Hob is off. Press main switch continuously until display is going off (without beep).
2. Press the "+" and " -" buttons of the front zones together (->short beep) for about 3 seconds (-> again short beep)
3. Press the timer selection key

Step 1   Step 3

d.

Step 2
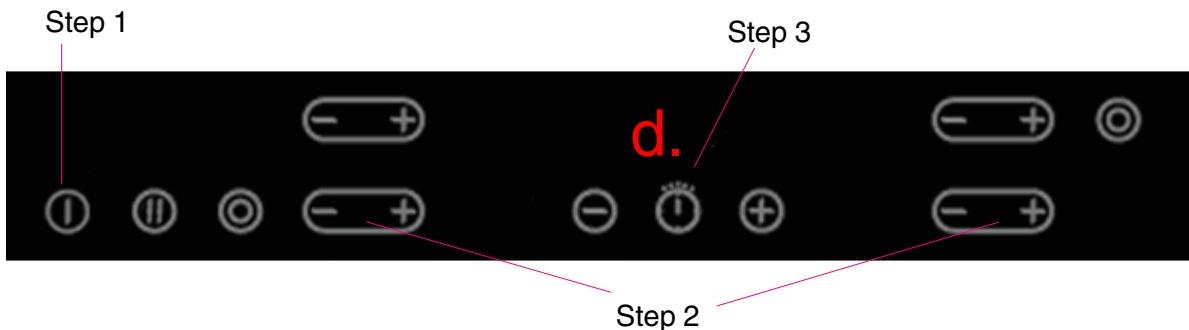
4. The display shows a „d" for demo mode.
   If you press the timer select key again you switch to "S" for Service mode,
   another press gets you to "E" the alarm menu. (Test all LEDs / Displays for 10 sec.)
5. By pressing the button "+" of a cooking zone you activate the menu. For example, status like above shown in the graphic – hob is in demo mode, press '+' key of zone to deactivate the demo mode.

Demo Mode:
If demo mode is activated the display with the „d" shows additionally a dot.
After selecting the demo mode, the electronic goes to off. Now it can be used like usual but only without heater activation. The deactivation of the demo mode is done in the same procedure as activating. After deactivating the demo mode the electronic must go off. Now the hob can be used in normal mode.

Alarm Mode "E"
The last 5 stored alarm codes are displayed like an actual alarm, each for 5 sec., starting with the oldest to the newest . The alarms are checked for all hob controllers. They are displayed like normal occurred alarm.

4.13 Security functions

Zone switch off security
The hob must switch off a zone automatically which has been activated for an unnecessary long time. If this time has elapsed the power board the hob must switch off this zone. The information of elapsing time comes from the power board by a „hob control status message".

Wrong activations of buttons
In practice it is possible that the keys could be covered e.g. by a pot. This can cause e.g. wrong zone activation. Therefore if any key has been pressed longer than 10 seconds the hob must be switched off. This event must be signalised to the user by a special buzzer signal.

Hot zone signalisation (Residual heat indication)
The hob must show the user if a zone is still hot after being switched off. This information comes from the power board by a „hob control status message". If the zone is off and hot this must be shown by an „H" in the zone level display.

Hob switch off security
The hob must switch itself after 10 seconds if no cooking level or clock has been set during this time.

4.14 Summary of used Symbols in 7 Segment Displays

| Symbol	Comment
0 9	Cooking levels / time [min] / alarm numbers
.	Intermediate cooking levels (4.)
-	Activation of the cooking zone is not possible (due to active timer), Induction zone switched off because of over temperature at the coil sensor (empty pot)
A	Fast heating up function (Ankochstoss)
E	Alarm display
F	Pot detection no pot detected
H	Residual heat indication *or* CENTRONICA power level 9
L	Lock Function or key lock *or* CENTRONICA power level 1
P	Power (booster) function for induction
|	CENTRONICA power level u
∪	Keeping warm
d	Demo mode activation
s	Service mode activation
c	CENTRONICA Priority code selection double/triple zones
o	CENTRONICA Residual heat indication- Not used on HIC interfaces, only on sep. 7-Segment Display in the hob!

5. Technology/ Wiring diagrams

5.1 Interface view of input part/ power board
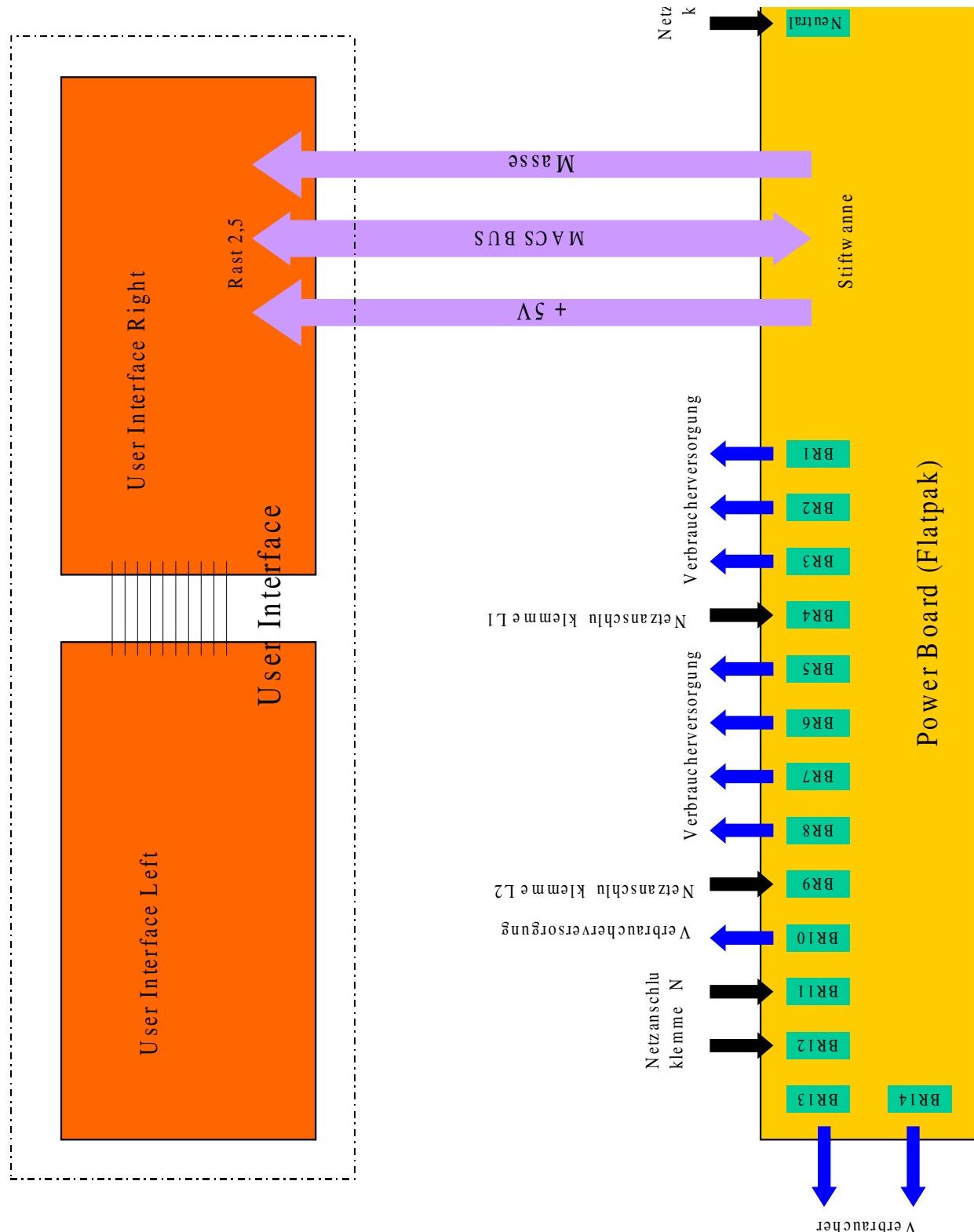
User Interface Right	= user interface Right	Stiftwanne	= pin tray
User Interface Left	= user interface Left	Verbraucherversorgung	= consumer supply
User Inferface	= user interface	Netzanschlußklemme L1	= mains connecting terminal L1
Masse	= earth	Power Board (Flatpak)	= power board (Flatpak)
Netzanschlußklemme	= mains connecting terminal	Netzanschlußklemme L2	= mains connecting terminal L2
Neutral	= neutral	Netzanschlußklemme „N"	= mains connecting terminal "N"
Phase	= phase	Verbraucher	= consumer

5.2 Block wiring diagram power board-HOC 2000
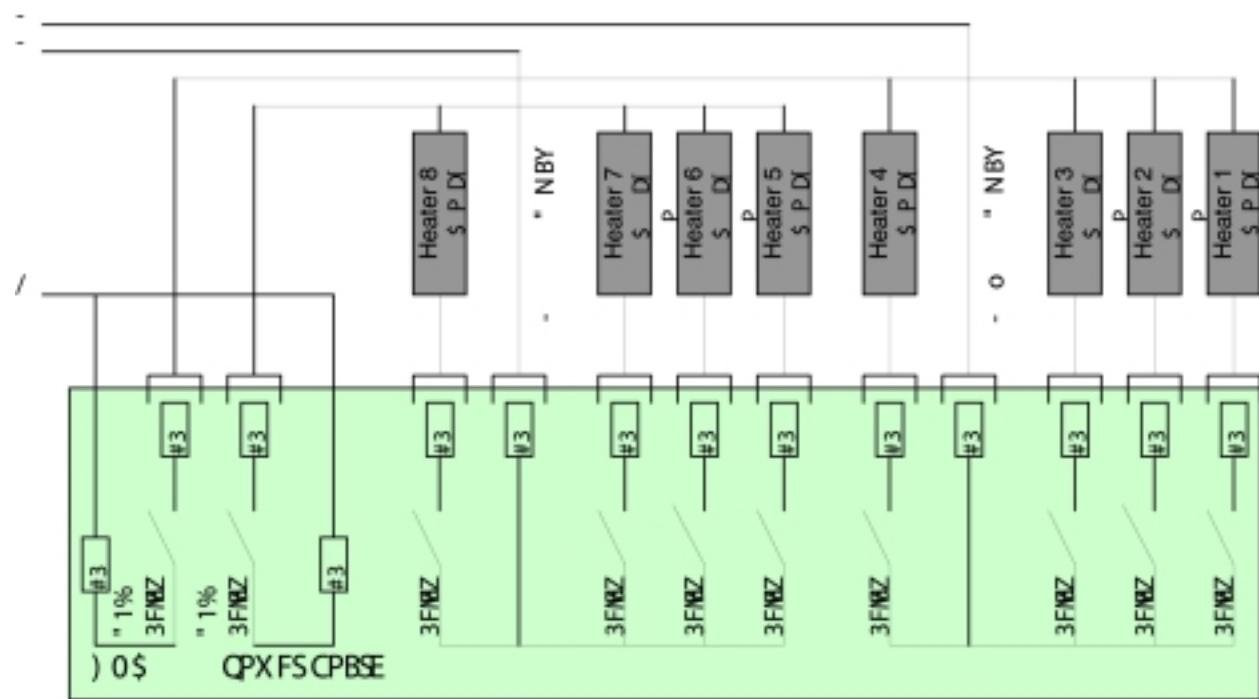
Heater	=	heating element
Power board	=	power board